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ABSTRACT

This report summarizes the empirical research and theory produced on a nine-year program designed to investigate the factors producing defensive behavior within groups. The structure and assumptions of a comprehensive "defense-reductive" theory of social behavior are briefly described, and related to the empirical research performed under three contracts. A summary is given of instances of practical tests of the theory in industrial, community, and educational settings. The research program is viewed in part as a test of a tri-partite theory of research technology.

I. Introduction

The following report describes the research and theory production performed under three Office of Naval Research Contracts. The contracts provided support for an integrated program of studies on the "Determiners of Defensive Behavior in Small Groups." The research from 1953 to 1956 was carried out under provisions of Contract No. Nonr-1147(03), NR 170-226 at the Group Process Laboratory of the University of Colorado. The research from 1956 through 1959 was carried out under provisions of Contract No. Nonr-2285(01) at the Fels Group Dynamics Center at the University of Delaware. The research and theory production performed from 1960 through 1962 was carried out under provisions of Contract Nonr-3088(00) at the National Training Laboratories, Washington, D. C.

The major technical aspects of the various laboratory experiments and field studies performed under the contracts have been described in a series of ONR Technical Reports and other publications listed in the annotated bibliography in Section VIII of this report. It is the purpose of the present report to summarize and integrate these various findings.

A more formal and detailed statement of the summary given in this report is given in two books being prepared for publication. One is titled The Arousal and Maintenance of Defensive Behavior in Small Groups, by Jack R. and Lorraine M. Gibb, which will contain a detailed statement of the theory and its empirical foundations, and another by the same authors titled Participative Training Theory, which gives a systematic statement of defense reduction theory as applied to child rearing, management development, classroom education, and group training or therapy (34).[1]

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1. Underlined numbers in parentheses refer to the reference number in the bibliography contained at the end of this report. Numbers not underlined, when given, refer to specific pages in the given reference.

II. Aims of the Research Program

There were four basic aims of the research program as conceived in 1953 when the program was started. These aims are the following:

1. Theory Production. A final outcome of the program would be an empirico-deductive theory of defense arousal and maintenance in small groups. Derived from small-group paradigms, the theory is assumed to have general application to intra-psychic, dyadic, micro-cosmic, and macro-cosmic social systems. The nature of defense and its arousal and maintenance is assumed to be central to the building of an adequate formal theory of social organization and movement.

2. Empirical Research. Field and laboratory studies were to be conducted as tests of a number of basic relationships among variables and constructs hypothesized to be central to the above theory. Miniature and artifactual paradigms were constructed in the laboratory as situations for tests of abstracted relationships. Field situations were devised as tests of generalizability of these laboratory-derived propositions in "natural" or "field" situations.

3. Engineering Applications. Further direct tests of the generalizations were to be made in "practical" social situations to build a body of engineering knowledge applicable to education, child rearing, training, therapy, and other change induction situations.

4. Methodological Theory. A practical as well as systematic test was to be made of a tri-partite theory of research methodology. Derived from certain ontological and epistemological principles, this theory of research was to be tested in a relatively circumscribed and long-term project. The adequate testing of this theory would involve the necessary delay of publication and full dissemination of the critical findings until a full test of the practicability of the theory could be reasonably made.

III. Defense-Reductive Theory

As indicated above, the assumptions and formal framework of the defense-reductive theory and the empirical substrata of the theory are being presented in two books being prepared for publication. Presented here are ten central assumptions of the theory, together with representative findings from the laboratory experiments, field studies, and training demonstrations that are relevant to the assumptions. These findings have, in large part, been presented in detail in a series of reports and publications listed in Section VIII. Such a systematic formulation, presumably in part because of its genesis in relevant methodological theory, has relatively high heuristic value and a number of studies are now going on in industrial and educational settings as further tests of the theory (34).

Selected and representative findings relating defense level to the other constructs in the system are presented below, particularly under Assumption IV, which was central to the directions of the research under the present contracts.

1. Assumption I: primary modal concerns: Arising inevitably in all social structure are four modal concerns listed in Table One: acceptance, data flow, goal formation, and social control. These concerns generate emergent and intrinsic motivations to reduce the concerns, and this reduction produces movement and growth. The acceptance concern or dimension has to do with the formation of trust and acceptance of self and of others, the reduction of fear of self and of others, and the consequent growth of confidence. The data-flow concern is related to the flow of feeling and perceptual data through the person or through the group; the system output of behavioral cues and all communicative evidence of attitudes, feelings, and perceptions; and the system input of such data. The goal-formation concern has to do with the continuing assessment of intrinsic motivations in the person or the group, and the integration of motivations at various levels into action sequences,

problem solving, and decision making. The control dimension relates to the intrapersonal and interpersonal control or regulatory mechanisms that lead to co-ordinated sequences of behavior in the person, sequential flow of behavior in the group, formation of roles and expectancies, and integration of function into structure at all levels of social behavior.

There is some evidence for the methodological usefulness of this four-unit categorization:

(1) The concerns are apparently universal in occurrence in work, action, training, and therapy groups. They continually recur in the verbal and non-verbal behavior of group members (33; 43).

(2) The categories show a relatively good fit with categories of mental health and personality development as seen in the clinical literature (cf., Table One, column 4).

(3) Experimental manipulation of each of the four major variables seems to produce increments or decrements in group effectiveness (5; 21; 35; 36; etc.).

(4) Our studies of group growth indicate that significant changes occur along each of the four dimensions with prolonged training or therapy (29; 33; 43).

(5) Examination of the anthropological studies of group behavior and organizational structure indicates the prevalence of these four concerns (34).

(6) Handling of the concern by a group is frequently accompanied by high emotionality, neurotic persistence, or neurotic denial (27; 33; 34).

(7) The categories have high validity for trainees in group therapy, group education, or group training (34).

(8) The categories have face validity for naive group members, who can easily identify, from their own experiences, instances of change along each of the four dimensions.

(9) Intensive interviews of group members at critical points in group growth show consistent sequences in concern resolution (34; 44).

2. Assumption II: derivative modal concerns: Each of the primary modal concerns becomes differentiated into a manifest concern, which often becomes verbalized and conscious. Thus the primary, often latent, concern for acceptance becomes differentiated into concerns about degrees of membership in the various groups of which the person is in some fashion a part. (See column 2 of Table One.) The concern for data finds its manifest expression in decision making and choice behavior in the group. The concern for goal formation becomes a concern for productivity, creativity, learning, growth, or other form of end or means product of the group. The control dimension becomes a concern for organization, which, in the sense the term is used here has all degrees of formality, stability, awareness, and complexity in a variety of social situations.

Various kinds of data were obtained from samplings of tapes or coded observations of 114 training groups in which one or more trainers were present and active. Forty-nine of these groups were observed at various laboratories conducted by the National Training Laboratories. Forty-three of these groups were observed in various industrial settings. Twenty-two student and adult groups were observed in the University of Colorado studies. Data from these trainer groups were compared with similar kinds of data obtained at the University of Colorado on 66 groups in which trainers were not present and 23 groups in other industrial and educational settings in which trainers were not present. An extensive program with trainerless industrial groups is getting under way in January of 1963 designed to further test the pragmatic value of this formulation. The evidence is abundantly clear that, whether or not a trainer is present, groups work on the four primary modal concerns and the four derivative concerns (34).

This and other extensive evidence from the general literature leads us to the assumption that the eight modal concerns are general characteristics of social structure.

TABLE ONE
MODAL CONCERNS IN SOCIAL PROCESS AND STRUCTURE

Primary Modal Concerns (1)	Derivative Modal Concerns (2)	Primary Social Drives (3)	Defensive-Reductive States	
			In Person (4)	In Group (5)
Acceptance	Membership	Acceptance	Acceptance of self and others	Supportive climate Climate of trust
Data flow	Decision	Cognitive-affective clarity	Spontaneity (Output) Awareness (Input)	High reliability feedback system
Goal formation	Productivity	Achievement-fulfillment	Integration Directionality	Goal integration
Control	Organization	Interdependence	Interdependence (Intra-system control)	Interdependent, participative structure and function (Intra-system control)

3. Assumption III: primary social drives: Each of the primary modal concerns is associated with and maintained by one of the four primary social drives listed in column 3 of Table One: drives for acceptance, cognitive-affective clarity, achievement-fulfillment, and interdependence. These drives are assumed to be present in all social organisms. The evidence for this assumption comes from post-training interviews (34); the continual ascendance of these drives in multiple leaderless and trainerless groups with minimal norm induction (27; 34); the rise in DL when inductions are designed to thwart these drives; and from extrapolations from the general literature on social motivation (27; 34).

4. Assumption IV: defense level: Defense level is a dynamic state of a social system: intrapersonal, dyadic, group, institutional, community, or societal. The defense level is characterized by degrees of stability, inductivity, intensity, susceptibility to awareness, and saturation. Conceptually, defense level is seen as the amount and distribution of effort expended by the social system in protecting itself from perceived or anticipated attack from within or from without the system. Empirically, defense level has been defined by a number of operations performed in experimental and field research designs.

It is clear that defenses of the system can be differentiated qualitatively, both in individuals and in groups, and also in larger social systems. Our interest has been in gradualistically refining a unitary construct; finding correlates, determiners, and effects; determining properties; and determining the usefulness of the construct in predicting behaviors of social systems and in understanding the nature of social behavior (see particularly 19; 20; 34).

In general, it appears that defense level (DL) is raised when organic states are dissonant with the directionality of the primary growth processes.

Thus, DL is related to the perceived or felt acceptance from within or without the system. Caring-oriented feedback is more reductive of the DL than neutral feedback (16; 20; 34). Positive feedback lowers the DL (4; 32; 37). Induced supportive climates reduce decision-time (28; 34). Trust formation is central to the induction of the therapeutic community (25; 26; 27). A change in language patterns changes DL in both the sender and receiver of communications (18; 34). Support-oriented leaderless training in college groups and in elementary classrooms produces decreased DL and subsequent behavior change (25; 32).

DL is related to information deprivation and reduced data flow. Groups whose members get information about feelings, either positive or negative, perform more effectively on the task than do groups without such information (34; 42). Continual feedback over periods from three to forty weeks causes significant directional changes in DL and in task effectiveness (29; 34). Spontaneous expression of feeling is related to trust formation (25; 28). DL is lowered and raised and data flow mediated by postural, tonal, and other non-language cues (20; 29). Creativity is related to data flow and defense level (22; 35). Self-insight changes occur as a correlate of DL changes during training as compared with situations in which DL remains relatively constant (21; 36).

DL is related to goal formation. In general, when inductions are dissonant with emergent goal structures within the system, DL is raised (8; 12; 17; 34). Goal formation is increasingly difficult as the perceived size of the social system increases. Any impairment of goal formation tends to increase the DL (22; 28; 31). Supervisors who start with worker perceptions of the goal rather than with supervisor perceptions of the goal arrive at decisions with groups more rapidly and with greater frequency of attained consensus (28; 34). Goal formation is dependent upon antecedent growth on the acceptance and data-flow dimensions (28; 39). Manipulation of acceptance and data flow can produce polarization and increase DL during goal exploration. This is interpreted as evidence for the genetic antecedence of certain variables in the contingency

hierarchy (34; 35).

DL is related to the ratio of the emergent-autonomous control systems to the externality of control systems. Thus, perceived coercion or persuasion raises the DL (17; 20). DL is lowered and provisional behavior increased after forced work on building an internal control system (30; 33). Remarks which are perceived as control oriented raise the DL (16; 18; 26). Reduction of external controls raises DL in situations of low acceptance and decreases DL in situations of higher acceptance or of further growth on the acceptance dimension (10; 25; 34).

5. Assumption V: personal growth: Susceptibility to growth is assumed to be a major property of social organisms. Defense level is assumed to be a major deterrent to growth in all social systems. Defense-reductive states are associated with growth in the person. Growth (and defense reduction) in the person (see column 4, Table One) is associated with increasing acceptance of self and others, with increasing spontaneity (output) and awareness (input), with increasing directional integration of goal structure of the organism, and with the emergence of an intra-system control system.

One significant aspect of personal growth is directionality. If change in the direction of growth on one or more of the above dimensions occurs, then this change in itself brings into being forces making for further growth.

In building a theory of change (23), we have examined the clinical literature on personality growth, analyzed interviews of individuals undergoing group training, and made logical extrapolations of the processes we noted in training groups. Our four dimensions are a tentative "best fit" of all these observations. Our hypothetical model of the mature or healthy personality is one that has made significant directional change along these four dimensions, and is continuing to make significant directional change (27; 34).

6. Assumption VI: group growth: Defense level is assumed to be directly related to directionality of group growth. Defense-reductive states (growth-producing states) in the group (see column 5, Table One) are associated with the emergence of a trust system, a high reliability feedback system, increasing goal integration in depth and in spread, and increasingly participative structure and function (intra-system control) (6; 8; 33; 34).

Many theorists have made analogies describing the process of group formation as a spiral, a series of cycles, or a series of stages which succeed one another as new phases occur in growth. Our studies suggest that group growth is no more saltatory than individual growth. We have not found consistent, identifiable stages of development in the groups we have studied (33). What seems most likely is that group growth is a gradualistic and global process, in which themes and subthemes may intertwine but in which the dramatic quality is the wholeness, or the Gestalt. The modal concerns we describe are products of analysis -- methodological tools which simplify the task of the diagnostician but bring an artifactitious quality to the flow of processes in the developing group. It is, of course, true that all analysis is an abstraction, but this seems particularly true of the process of group development. To say that there are probably no stages of development is not to say that there are no consistent sequential changes in looking at groups over a time span. In the Colorado studies, for example, we brought both naive and trained observers in to observe the third and fifty-eighth hours of the training groups (34). All observers agreed on the presence of dramatic changes on the four modal dimensions. In contrast to this high agreement, there was low inter-observer agreement in identifying interim "stages" of growth on the four dimensions (34).

Defense-reductive theory postulates that the primary and basic dimension is the acceptance dimension. Progress on the other dimensions is not possible without concurrent change on the acceptance dimension. As people grow to

trust one another they can share intrinsic motivations, give and receive data from one another, and build an interchangeable, interdependent organization which spontaneously meets the changing needs of the group.

Analysis of the tapes and coded observations of 88 training groups indicates that change on some of the dimensions does occur in all cases. This change often proceeds in fits and starts at the manifest level, is sometimes apparently regressive, is not always apparent to the members, and is present on some measures and not on others (33). It is impossible from our data for us to build at this point a completely satisfying sequential model. The measures we have been using are not adequate to indicate the regularity, if the regularity is indeed present. It does seem clear that, in some groups, change is in cyclic or spiral form, with movement back and forth across dimensions. In other groups, change seems to proceed in dramatic and unpredictable spurts. In other groups, long periods pass with either regressive movement or plateaus of no progress, with occasional dramatic spurts at the end. Most of the data we have are on groups of two or three weeks' duration, making a total of 20 to 30 hours in group time. In some cases, our Colorado groups continued for as long as 240 hours, over a period of nine months. In all cases, groups that continued for over 60 hours made significant progress on the measures we used (34).

7. Assumption VII: the contingency hierarchy: There is a consistent genetic sequence in the rise of the four basic modal concerns in social structure. The deepest and earliest concerns arise in the following order: acceptance, data flow, goal formation, and control. Development on all four dimensions is concurrent and interdependent, but optimal (regenerative) growth occurs when the factors "lead" one another in the optimal sequence. The basic order of development is often camouflaged at the phenotypical or manifest level.

Growth in each dimension is contingent upon growth in each of the other dimensions of the hierarchy. Each factor in the hierarchy provides a pace-setting or boundary function for the factors lower in the hierarchy. Thus, data flow is possible only within the limits of trust formation. A free flow of data is possible only with antecedent or concurrent reduction of distrusts and fears. Defense mechanisms and organizational demands prevent functional processing of data beyond the trust limits. A person can look at his goals only as he begins to trust himself. This growing self-trust makes self-awareness possible. Integration of group goals occurs only as rapidly as members build sufficient trust and awareness to verbalize openly their intrinsic goals. Premature goal-formulation beyond the trust and data boundaries leads to unrealistic, over-aspirational, or formalized goals, the pursuit or lack of pursuit of which leads to apathy or various other forms of resistance. Stable and functional organizational structure is possible only as goals have been achieved through adequate reality-processing of data within the trust boundaries of the organization. In the early stages of group growth, organization is maintained by an appropriate degree of formalization of control mechanisms, imposition of extrinsic goals, filtering of the communication system, and checks and balances appropriate to the trust level. In the later stages of group growth, the organization, growing from a free flow of data in relatively high trust, becomes spontaneously generated through integration of intrinsic motivations. In early stages of organization, the structure is to some degree maintained by fear, strategy, persuasion, and power. In later stages, the structure comes to be maintained by trust, reality-data, intrinsic motivations, and interdependence of roles.

It is further assumed that there is a similar, parallel functional hierarchy among the four primary social drives.

8. Assumption VIII: <u>regenerative cycle</u>: Under certain specified conditions

in social structure a kind of regenerative cycle is built up, similar to a regenerative cycle in electronics, in which going in one direction the process becomes cumulatively more effective. Thus, under certain conditions interaction leads to trust, which allows openness of data, which permits sharing of self-assessed goals, which creates interdependence, which augments trust and acceptance, even greater data sharing, a deeper look at one's goals, greater interdependence, and so on, in a regenerative cycle which under certain conditions at least leads to apparent growth of people and to the production of healthy groups.

It is possible to relate the likelihood of such a cycle to DL (34); to defense-reductive technology of the leader (27; 28; 33); to defense-inductive technology of the leader or members (27; 33; 34); and to the growth properties of the educational, training, or therapy groups (34).

9. Assumption IX: defense-reductive technology: Under certain conditions a constellation of behaviors will arise in social structure which is essentially defense-reductive, tends to trigger or to sustain the regenerative cycle, can be learned under predictable conditions of tuition, tends to cluster and to feed itself, and leads to growth in the person or in the group. Significant or representative aspects of the cluster of defense-reductive behaviors are listed in column 2 of Table Two (25; 27).

TABLE TWO

REPRESENTATIVE CLUSTERS OF DEFENSE-REDUCTIVE BEHAVIOR AND ITS EFFECTS

Primary Modal Concern (1)	Representative Behaviors (2)	Representative Effects (3)
Acceptance	Self-confidence	Diversity, nonconformity
	Confidence in others	Warmth
	Trust of self	Trust
	Trust in others	Exposure of larger areas of self
	Love	Realistic confidence in work product
	Warmth	Open discussion of motives, distrusts
Data flow	Openness	Spontaneity and open expression of feeling
	Spontaneity	Decision speed related to significance of issue
	Participation in feedback	Emergence of data collection
	Expression of feeling	Process integrated into work
	Listening	Congruity among multiple measures of agreement
	Empathy	Diagnostic stance toward data
Goal formation	Self-determination	Acceptance of assessment tasks
	Self-assessment	Realistic, provisional goals
	Sustained work	Creative work products and patterns
	Intrinsic motivation	Willingness for trial runs
	Verbalizes goals	Commitment to group tasks
	High initiation	Increasing congruence of work and play
Control	Permissivity	Fluidity of organization patterns
	Interdependence	Open expression of conflict and testing
	Freedom of form	Reduced concern for form and regulations
	Informality	Diversity and noncomformity
	Internal controls	Role flexibility and interchangeability
	Acceptance of authority	Allocation of work by consensus or ability

10. Assumption X: defense-inductive technology: Under certain conditions a constellation of behaviors will arise in social structure which is essentially defense-inductive, tends to trigger or to sustain counter-regenerative cycles, can be learned under predictable conditions of tuition, tends to cluster and to feed itself, and either prevents or depresses growth processes in social organisms. Significant or representative aspects of the cluster of defense-inductive behaviors are listed in column 3 of Table Three (25; 27).

Systematic analysis of tapes and observations of training and educational groups indicate the predictive value of coding group member behaviors as "persuasive" (defense-inductive) and "participative" (defense-reductive) (34).

The "persuasive technology" tends to arise predictably and somewhat systematically from the set of conditions that come about in a group that has failed to make great movements on the acceptance dimension. When the group has made great progress on the acceptance dimension, participative behaviors tend to arise. The two technologies indicated in Tables Two and Three represent two "idealized" extremes of patterns observed in both the natural and training groups observed in our studies. In practice, of course, members, fathers, teachers, managers, and trainers tend to exhibit mixed and inconsistent technologies. We are concerned with certain predictions that can be made from such a systematic treatment of membership or leadership technology, and have derived a theory of trainer-behavior from this analysis (25). One relationship, for instance, which seems clear is that increasing fear and distrust are accompanied by an increasing use of persuasive technologies (34). As confidence and trust increase, patterns of membership and leadership become increasingly congruent with the participative model.

TABLE THREE

REPRESENTATIVE CLUSTERS OF DEFENSE-INDUCTIVE BEHAVIOR AND ITS EFFECTS

Primary Modal Concern (1)	Representative Behaviors (2)	Representative Effects (3)
Acceptance	Fear of self	Distrust and denial
	Distrust of self	Fear of therapy, exposure, hurt
	Social distance	Cynicism, paranoia, suspicion
	Fear of others	Protective pairing, concern for inclusion
	Distrust of others	Generalized resistance to influence
	Punitive feelings	Requests for direction from authority
Data flow	Strategy, gimmicks	Extremes of rapid and slow decision making
	Facade	Avoidance of process
	Secrecy, caution	Suppression in group, ventilation out of group
	Protective phraseology	Low agreement on action plans
	Dishonesty, distortion	Evaluative stance toward data
	Protective screening	Circumvention
Goal formation	Imposition of goals	Resistance to self- or group-assessment
	Asking for goals	Cynicism about quality of group product
	Persuasion	Extremes of apathetic and frenetic work
	Changing others	Conventional work patterns and product
	Extrinsic motivations	Unrealistic, overaspirational goals
	Manipulation of extrinsic rewards	Fear of group pressures and actions
Control	High control	Resistance to taking responsibility
	Coercion	Bargaining and barter reactions to power
	Paternalistic intervention	Role fixation; role boundaries
	Submissiveness	Symbolic and displaced fight
	Legalism	Demands for structure, formal rules
	Bargaining stance	Manipulation planned out of group

IV. Engineering Tests of Defense-Reductive Theory

Specific change-induction methods derived wholly or in part as implications from the above defense-reductive theory have been progressively refined in a number of social settings: middle management development programs (28; 30; 34); student leadership training (17; 21; 31; 34; 50); human relations training laboratories (8; 18; 29; 34; 43); elementary psychology classes (8; 32; 34); group therapy (27; 34); training of occupational therapists (9; 34); adult education courses (1; 10; 15; 34); family counseling and child rearing (34); training of dieticians (12; 34); training of ministers in home visiting (34); training human relations trainers (21; 25; 34); training elementary school teachers (34); training secondary school teachers (34; 54); training Sunday School teachers and other character education specialists (34; 55); training the total college faculty as a unit (34); training community specialists (34; 40); training merchandisers (34); training first grade students (34); training youth workers (34); training student governing bodies (34); etc.

Some methods in the various settings listed above were used to facilitate threat reduction, trust, or acceptance. One method of sharing negative self-perceptions was dramatically successful and has been widely used since in several settings (27; 31; 34). We tried homogeneous groupings based on scores of various personality and/or interested tests; heterogeneous groupings; variations in size of training groups; feedback of selected test and process data; various training designs aimed at reducing ambiguity, clarifying expectations, or reassuring participants; and a great variety of training techniques with children, adults, managers, and teachers designed explicitly to induce changes in climate (34). Carefully planned experiments have demonstrated that such methods induced a change in the productivity of the group (30; 32; 34), the defense level (34; 35), and the freedom to express feelings and criticisms of group members (30; 34).

Some procedures were designed to facilitate the data flow. We used standardized tests of personality, interest, attitude, or ideology and fed back test scores to group members in the large group of 60 participants, in the small group of 12, or privately to individuals (29; 37; 41; 42). We devised tests of self-insight, social sensitivity, role flexibility, and other variables and gave individual scores to the members (34; 36). We constructed daily reaction sheets designed to measure perceptions and feelings about goal clarity, trust, interdependence, involvement, satisfaction with work, and other variables and presented temperature charts in general sessions comparing the five groups, in individual groups, or at selected critical points in the progress of the groups. It is clear that data flow can be manipulated and that such data flow has dramatic effects upon group atmospheres, group productivity, member security (34), and a variety of other variables (27; 34).

Some methods were used to facilitate goal formation, to increase productivity, or to evaluate progress toward goals. In some experiments we administered pre- and post-measures of many of the instruments indicated above. We demonstrated role playing, hidden agenda, subgrouping, coaching, alter-ego, and other specifically defense-reductive methods of exploring goals, assessing progress, and measuring learnings. Particularly effective have been some experimental programs designed to focus upon a new kind of assessment interviewing (34) in line situations in industry, in hierarchical situations in religious education institutions (34), and in child rearing (34).

Various methods used in the above settings were directed at an understanding of the control dimension. We began by imposing boundaries and various minimal controls in the early years, and by reducing imposed controls as the experiments progressed. In general it became apparent that as we reduced controls, groups generated intrinsic control systems that were more

effective than the controls originally imposed. Of course, even the original controls represented much greater freedom than in comparison or control groups but various forms of resistance to controls would develop; resistance to meeting attendance regulations, taking personality tests, filling out the daily data collection sheets, trying out suggested procedures, etc. It seemed clear that in most instances when we reduced imposed controls to a minimum, we maximized the likelihood of emergence of the regenerative cycles of trust-feedback-intrinsic goals-internal controls.

In a series of carefully controlled experiments in which pre- and post-measurements were made upon people in trainerless groups and upon comparable people taking classes of similar duration, significantly greater changes occurred in the trainerless groups. We have reported in various studies statistically significant changes in role flexibility, self-insight, self-regard, problem-solving skills, diagnostic sensitivity, person-acceptance, and other processes that can be interpreted as quasi-therapeutic in nature. The permanence of these changes is difficult to assess. The significance of the changes, as compared with comparably ambiguous assessments of therapy in other situations, seems to justify further exploration and study of defense-reductive, trainerless groups as a medium for therapy (21; 25; 27).

Under certain conditions the trainerless situation is particularly suited to the facilitation of this quasi-therapeutic and growth-producing cycle. Under some group conditions when parents, therapists, teachers, or trainers are present a kind of passivity and dependency is progressively created (27). Under some extreme formal theories of education, therapy, and parenting, the trainer is responsible for setting the boundaries and initiating action (control), manipulating extrinsic reward sequences (goal), providing the data, the instruments, or the impetus for getting the data (data), and creating a climate of approval and acceptance (acceptance). The trainerless and parent-less group is confronted with the problem of generating its own controls and

boundaries, building activities based upon intrinsic motivational sequences, deciding what data are necessary for appropriate action and how the data might be obtained in the natural situation, and creating in action the necessary therapeutic and growth-producing climate which activates the regenerative cycle (34). It is of course true that competent therapists, parents, and teachers recognize the nature of this dependency process and continually act in such a way as to handle the dependency problem. For some persons the trainerless situation is a kind of shock that may or may not be too great for the group to handle. Our engineering tests in a wide range of social contexts have demonstrated rather conclusively the pragmatic value of defense-reductive training in child rearing, group therapy, management training, and education (34).

V. Tri-Partite Theory of Methodology

One methodological option was taken on the program that involved the assumption that optimal research progress would be made if there were concurrent reciprocally interactive interrelationship among three necessary phases of effort: (1) hypothesis production and theory building, (2) empirical data accumulation, and (3) engineering tests of derivations from the theory, implications of the data, or intuitive hunches. These theoretical, empirical, and engineering phases of research effort are reciprocally dependent.

The results of this methodological theory can be best seen in relative utility of the constructs in the theory for engineering enterprises (25; 31; 34).

VI. Bibliographical Study

Bibliographies are being continually compiled in three major areas; (a) the structure and functions of small groups, (b) the "participative" change processes, and (c) the nature of defensive behavior in individual and

group behavior. The bibliographies in each of these three areas are essentially completed through parts of 1961 or 1962. We are in the process of annotating selected items from each bibliography and preparing for publication in some form. The defense bibliography is being used in the preparation of The Arousal and Maintenance of Defensive Behavior in Small Groups. The change and small group bibliographies are being used in the preparation of the book on Participative Change Theory (34).

The present small group bibliography contains approximately 2,700 items. The present change bibliography contains about 2,000 items. The current defense bibliography contains about 1,500 items. It is anticipated that publication of these bibliographies in some functional form related to the other publications will take place after the publication of the books.

VII. Personnel of the Projects

The following people were members of the laboratory research staff at some time during the course of the project:

1. Dorothy Boileau, University of Colorado
2. Vernon J. Damm, University of Colorado
3. Jack R. Gibb, University of Colorado
4. Lorraine M. Gibb, University of Colorado
5. Jacqueline Goodchilds, Fels Group Dynamics Center
6. Jaswant Khanna, University of Colorado
7. Albert J. Lott, University of Colorado
8. Grace N. Platts, University of Colorado
9. Alan H. Roberts, University of Colorado
10. Kenyon Runner, University of Colorado
11. Jacob Schonfield, Fels Group Dynamics Center
12. John H. Schopler, University of Colorado
13. Ewart E. Smith, University of Colorado
14. Peter Spanovick, University of Colorado
15. Lois Wolf, University of Colorado

The following people were members of the field research staff at some time during the course of the project:

1. James E. Allen, American Telephone and Telegraph Company
2. David Bradford, National Training Laboratories
3. F. Martin Erickson, University of Utah
4. Jack R. Gibb, University of Colorado
5. Lorraine M. Gibb, National Training Laboratories

6. Mathilda Jansen, Fels Group Dynamics Center
7. Eugene Keough, American Telephone and Telegraph Company
8. Albert J. Lott, University of Colorado
9. Peter McGregor, Antioch College
10. Alan H. Roberts, University of Colorado
11. Constance Young, Unitarian Church

The following persons were members of the staff of the Change Induction Seminar:

1. Jack R. Gibb, Fels Group Dynamics Center
2. Murray Horwitz, New York University
3. Dorothy Stock, The University of Chicago
4. Alvin F. Zander, The University of Michigan

The following persons were members of the statistical and secretarial staff at some time during the course of the project:

1. Helen Alexander, University of Colorado
2. Jane Casey, Fels Group Dynamics Center
3. Virginia Goddard, University of Colorado
4. Kay Matta, National Training Laboratories
5. Grace Scott, Fels Group Dynamics Center
6. La Vonne Tebay, University of Colorado
7. Blanche Torres, Fels Group Dynamics Center

The following people gathered data on the project for Masters' or Doctoral theses:

1. Charles E. Dowlin, University of Colorado
2. Gordon G. Goldthwaite, University of Colorado
3. Anthony W. Gorman, University of Colorado
4. Gaylene Pearson, University of Colorado
5. Grace N. Platts, University of Colorado
6. Jacob Schonfield, The University of Chicago
7. Charles N. Seashore, University of Colorado
8. Ewart E. Smith, University of Colorado
9. Lois M. Whitmore, University of Colorado
10. Richard O. Wupperman, University of Colorado

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